ABSTRACT OF THE DISCLOSURE

In a semiconductor device including at least one p-channel type MOS transistor, a silicon dioxide layer is formed on a silicon substrate, and a gate electrode is formed on the silicon dioxide layer. The gate electrode silicon has a three-layered structure including a silicon-seed layer formed on the silicon dioxide layer, a silicon/germanium layer formed on the silicon-seed layer, and a polycrystalline silicon layer on the silicon/germanium layer. An average grain size of polycrystalline silicon in the polycrystalline silicon layer is at most 100 nm, and p-type impurities are substantially uniformly distributed in the gate electrode along a height thereof, and the germanium atoms are diffused from the silicon/germanium layer into the silicon-seed layer at high density.